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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/533,561	05/03/2005	Hitoshi Mikoshiba	TEI-0132	2305

23353 7590 12/17/2009

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EXAMINER	
JACOBSON, MICHELE LYNN	
ART UNIT	PAPER NUMBER
1794	

MAIL DATE	DELIVERY MODE
12/17/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/533,561	MIKOSHIBA ET AL.	
	Examiner	Art Unit	
	MICHELE JACOBSON	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 September 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *40-58* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *40-58* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/29/09 has been entered.

Examiner Notes

2. Any objections and/or rejections made in the previous action, and not repeated below, are hereby withdrawn.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 40-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mikoshiba et al. WO 01/16963 U.S. Patent No. 6,689,458 used herein for reference

(hereafter referred to as Mikoshiba) and Yamaoka et al. U.S. Patent No. 6,025,958 (hereafter referred to as Yamaoka) in view of Fujii et al. U.S. Patent No. 6,411,344 (hereafter referred to as Fujii).

5. Mikoshiba teaches a transparent conductive laminate for use in LCD touch panels. (Col. 7, lines 53-62, Figure 2) In the embodiment of the invention exemplified in Figure 2, the laminate comprises the following layers in order (Col. 5, lines 25-35, Fig. 2):

a. Polarizer (**10**)

b. cross-linked polymer layer (**5**)

c. Polycarbonate film (PC) (**4**)

i. When the touch panel is attached to an LCD this transparent polymer substrate layer is recited to have excellent optical isotropy such that the in-plane retardation is at least 30 nm or less. (Col. 7, lines 60-67) In order to prevent scratching or solvent damage of a transparent polymer substrate in a process for manufacturing a touch panel or in a using mode of the touch panel attached to a display it is preferable to dispose a cross-linked polymer layer (**5**) having a hard coat property and/or a solvent-resistant property on the opposite side of the transparent polymer substrate from the transparent conductive layer. Fine particles may be added to the cross-linked polymer layer to impart a slipping property, an interference fringe preventing-property and an anti-glare property. (Col. 15, lines 4-14)

d. cross-linked polymer layer (A) containing fine particles (**6**)

i. Obtained by curing the particle containing monomer or oligomer raw material. (Col. 9, lines 9-12)

ii. Reduces the appearance of interference fringes, has excellent visibility and writing durability. (Col. 2, lines 54-57)

e. cross-linked polymer layer (C) (**9**)

i. (C) is recited to have a higher refractive index than cross-linked polymer layer (B) (Col. 4, lines 27-31)

b. cross-linked polymer layer (B) (**7**)

c. transparent conductive layer (**8**)

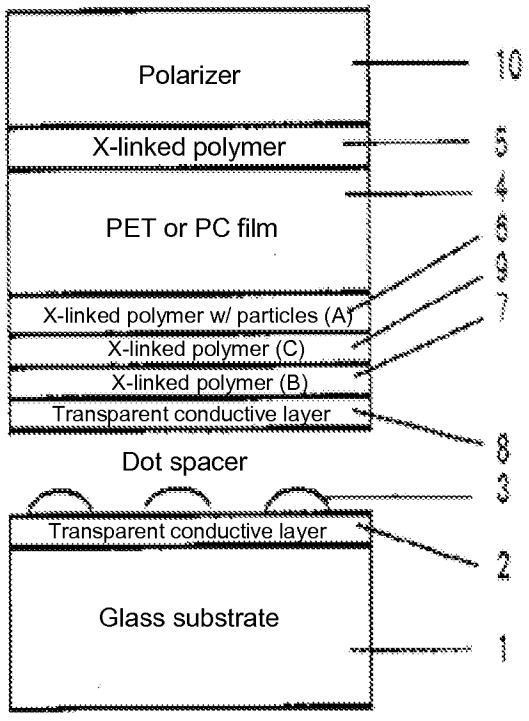
d. dot spacer (**3**)

e. transparent conductive layer (**2**)

f. Glass substrate (**1**)

6. Mikoshiba is silent regarding the disposition of a λ/4 polymer retardation film with a photoelastic constant of no greater than 70 x 10^{-12} Pa^{-1} and a light scattering layer with a haze value in the range of 0.2-1.4% between the

FIG. 2



transparent conductive layer and the polarizer.

7. Yamaoka teaches an LCD display device comprising a half wave and quarter wave plate produced by orienting high molecular weight films monoaxially, biaxially or in any other proper process. These films include polycarbonate-based films. (Col. 4, lines 38-47) Yamaoka evidences that it was well known in the art that circular polarizing plates obtained by bonding a λ/4 plate to a polarizing plate were widely used as anti-reflection filters for preventing reflection from the surface of a liquid crystal display or the like. (Col. Lines 26-29) Circular polarizing λ/4 plates can be made from single films oriented to give λ/4 retardation or from the combination of a λ/4 film and a λ/2 film. (Col. 3, lines 54-59) Circular polarizing plate acts as a circular polarization forming plate which emits circularly polarized light from the laminated wavelength plate when natural light enters the device on the polarizing plate side but acts as a linear polarization forming plate which linearly polarizes the circularly polarized natural light which has been reflected back from the inside of the to generate linearly polarized light which is then filtered out by the polarizing plate thus reducing reflection. (Col. 7, lines 19-30)

8. Both Mikoshiba and Yamaoka are directed to LCD display devices. Yamaoka specifically teaches the utility of the addition of circular polarizing plates comprising a polarizing plate and a λ/4 plate retardation layer in order to reduce reflection within LCD display devices. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have disposed a circular polarization plate within the invention of Mikoshiba in order to reduce reflection from the surface of the touch panel display.

9. Fujii teaches a transparent touch panel device and liquid crystal display comprising in the following order according to Figure 5: a polarizing plate (**11**), a retardation film (**12**) having a photoelasticity in the range of $5x10^{-12}$ Pa^{-1} – $65x10^{-12}$ Pa^{-1} (Col. 2, line 50), an optically isotropic transparent conductive substrate (**13**) that can be laminated on **12** (Col. 8, lines 59-63), transparent conductive films facing one another (**16**), an optically isotropic transparent conductive substrate (**14**) that can be laminated on a retardation film (**15**) (Col. 9, lines 4-8), a polarizing plate (**21**) and a liquid crystal cell (**17**). An optional additional retardation layer is recited to be disposed between layers (**21)** and (**17)** for the purpose of color compensation. (Col. 9, lines 54-61) Such a color compensation retardation layer is disclosed to desirably be formed of a material equal to the material of the retardation film incorporated in the touch panel and to have a substantially equal retardation. (Col. 7, lines 12-16) A cured resin layer comprising a

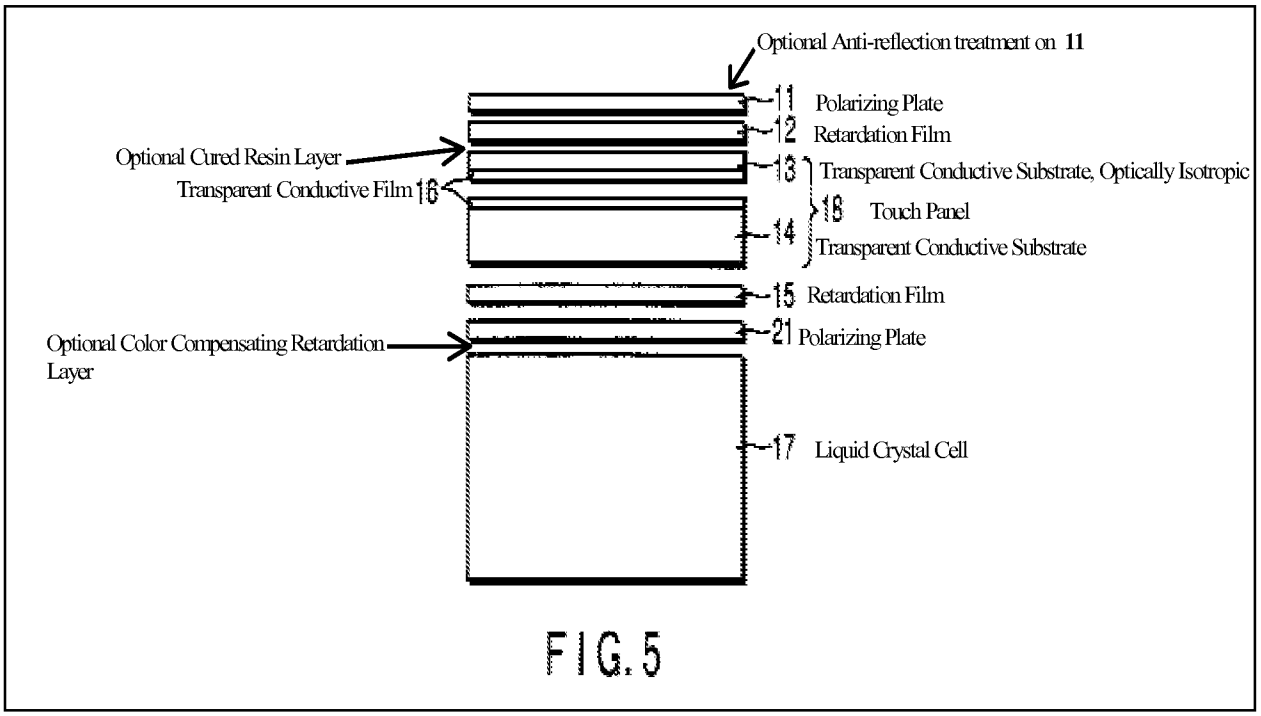


FIG. 5

polymer or a polymer with fillers is also recited to be optionally disposed between retardation layer (**12**) and the transparent conductive layer (**16**). (Col. 7, lines 56- Col. 8, line 34) The purpose of adding the fillers to this layer is to prevent the undesirable generation of "Newton's rings caused by interference of light between the transparent electrodes". (Col. 8, lines 21-23) Optimizing the fillers is recited to be necessary since "filler addition imparts in some cases a garish impression to the displayed image, making it necessary to keep the clarity of the transmitted image at 80% or more by optimizing the filler shape, and the coating conditions of the coating agent." (Col. 8, lines 30-34)

10. The first retardation film (**12**) is recited to be a quarter wave plate (λ/4 plate). (Col. 4, lines 58-59) This retardation film is bonded to the polarizing plate with an adhesive having a suitable refractive index so as to suppress light reflection. (Col. 6, lines 55-57) The glass transition temperature of the polycarbonate polymer used to form the retardation film is recited to be preferably 180° C and above. (Col. 10, lines 20-30) Fujii discloses that in touch panels the birefringence of the retardation film can be changed by the strain under stress because of the deformation of the polarizing plate it is attached to under the environment of use such that it can be deviated from a preferred range which can degrade the displayed image quality. (Col. 5, lines 53-60) It is therefore desirable to use a material whose birefringence is unlikely to be changed by the stress such as those having photoelasticity coefficients falling within the range of $5x10^{-12}$ Pa^{-1} – $65x10^{-12}$ Pa^{-1}. (Col. 5, line 61-Col. 6, line 3)

11. Example 1 of Fujii recites a polycarbonate retardation layer with a cured resin layer containing divinylbenzene series fillers disposed between the retardation layer and the transparent conductive layer. (Col. 11, lines 14-28) The photoelasticity of these layers was recited to be $62x10^{-12}$ Pa^{-1} and the haze was found to be 0.8%. (Col. 11, lines 25 and 32-33) When these layers were incorporated into the touch panel of the invention the retardation measured in the vertical direction was found to be 2 nm. (Col. 12, line 26)

12. Mikoshiba, Yamaoka and Fujii are all directed towards LCD display devices. Mikoshiba and Fujii are both directed towards LCD touch panel devices. Yamaoka and Fujii both teach polycarbonate retardation films and Mikoshiba teaches a polycarbonate transparent polymer substrate (**4**). Fujii teaches the benefit of retardation films with photoelasticity coefficients falling within the range of $5x10^{-12}$ Pa^{-1} - $65x10^{-12}$ Pa^{-1} in order to reduce the change in birefringence caused by deformation of the film when it is in use in a touch panel.

13. As stated above it would have been obvious to one having ordinary skill in the art at the time the invention was made to have disposed a circular polarizing plate in the invention of Mikoshiba. Furthermore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the retardation films recited by Fujii having a resistance to change in their birefringence from compression to comprise circular polarizing plate for use in the touch panel of Mikoshiba since touch panel displays undergo much more deformation than regular displays. The obvious utilization of such a retardation film for the circular polarizing

plate would have provided the desirable benefit of preventing degradation of the displayed image quality caused by a change in birefringence of the retardation film from deformation of the polarizing plate it is attached to under the environment of use.

14. Since Mikoshiba already recites a polycarbonate film for the transparent polymer substrate (**4**) one of ordinary skill would have been motivated to substitute the polycarbonate circular polarization plate film taught by Yamaoka produced from the polycarbonate polymer disclosed by Fujii having a beneficial photoelastic constant for the transparent polymer substrate disclosed by Mikoshiba. Mikoshiba specifically states that a particle containing cross-linked polymer film was desirably disposed on the transparent polymer substrate during the laminate manufacture for protection of the film and for interference fringe preventing-property and an anti-glare property. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have disposed such a cross-linked particle containing film on the polycarbonate retardation layers of the circular polarizing plate between the retardation layer and the polarizing plate of the circular polarizing plate to protect the polycarbonate retardation film of the circular polarizing plate during production and to provide the beneficial properties of interference fringe preventing-property and an anti-glare property as recited by Mikoshiba.

15. Additionally, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have included a retardation film on the fixed lower substrate comprising the same material and the same retardation (λ/4) as the upper

retardation film of the modified invention in order to provide color compensation as taught by Fujii.

16. Although Mikoshiba does not recite a haze value for the cross-linked particle containing film (**5**) disposed on the transparent polymer substrate, it would have been obvious to one of ordinary skill in the art to optimize the haze value for this film by modifying the result effective variables of particle size and concentration in order to obtain the highest levels of fringe reduction and anti-glare properties. Optimizing the haze value of the light scattering layer would also lead to optimization of the centerline average roughness since this parameter is linked to the haze value of the layer.

17. Regarding claims 41-45, 50 and 52-55: The obvious replacement of the transparent polymer substrate (**4**) recited by Mikoshiba with a polycarbonate film comprising a λ/4 plate to form a circular polarizing wave plate comprising the λ/4 plate made from a polymer with a photoelasticity within the range of $5x10^{-12}$ Pa^{-1} - $65x10^{-12}$ Pa^{-1} as recited by Fujii , a fine particle containing cross-linked polymer (**5**) layer modified for optimum haze to prevent interference fringes and glare, a cured resin layer (**6**), a low (**7**) and high (**9**) refractive index optical interference layer, a polarizing plate (**10**) and an additional retardation on the lower substrate film comprising the same material and the same retardation (λ/4) as the upper retardation film (**4**) of the modified invention in order to provide color compensation would have produced the same invention as claimed in claims 41-45, 50 and 52-55.

18. Regarding claim 40: While Mikoshiba does not specifically recite the use of first and second fine particles, it is the examiner's opinion that not all of the particles added

to the cross-linked polymer layer (A) recited would be uniform in size and shape. Accordingly, this cured resin layer would have contained at least a first and second type of fine particles, some of which having a primary diameter of less than 100 nm. Since transparency is of utmost importance for the types of displays disclosed, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have varied the result effective variables of particle size and concentration in order to obtain the most beneficial properties of clarity and interference reduction while still retaining enough particles of larger size in order be effective at preventing blocking between the substrates. Such an optimization would have resulted in the invention claimed in claim 40.

19. Regarding claims 46-49: Yamaoka specifically teaches that circular polarizing plates may contain λ/2 plates between the λ/4 plate and the polarizing film as long as they comprise a λ/4 plate. Since the polycarbonate retardation films would be expected to perform as a substrate layer in the invention of Mikoshiba, in order to increase the structural integrity of the retardation layers of the circular polarizing plate, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized a λ/2 plate between the λ/4 plate and the polarizing plate as well as a λ/4 plate to form the retardation film. Additionally, for the same reason it would have been obvious to one having ordinary skill in the art at the time the invention was made to have included optically isotropic films made of the same films as the retardation layers that resist changes in birefringence from deformation as taught by Fujii. The obvious use of a λ/2 plate and optically isotropic structural reinforcement layers in the

retardation layer of the circular polarizing plate would have produced the same invention as claimed in claims 46-49.

20. Regarding claim 51: Cross linked polymer layer (A) recited by Mikoshiba corresponds to the cured resin layer claimed by applicant in claim 51. While Mikoshiba does not specifically recite the use of first and second fine particles, it is the examiner's opinion that not all of the particles added to the cross-linked polymer layer (A) recited would be uniform in size and shape. Accordingly, this cured resin layer would have contained at least a first and second type of fine particles. As such, the obvious modification of Mikoshiba would have produced the same invention as claimed in claim 51.

21. Regarding claims 56-58: The obvious use of such a laminate as produced by the obvious modification of the touch panel recited by Mikoshiba would have produced the same invention as claimed in claim 56. While Mikoshiba does not provide a lot of guidance as to the fabrication of touch panels comprising LC cells, Fujii does recite that it is desirable to dispose a polarizing plate with retardation films on both sides between the LC cell and the transparent conductive substrate. Although Fujii and Mikoshiba do not recite polarizing plates disposed opposite the touch panel portion of an LCD display device it is well known in the art to dispose a polarizing plate between the LCD and the light source. As such, the inventions as claimed in claims 57-58 are obvious in view of these references.

Response to Arguments

22. Applicant's arguments filed 9/29/09 have been fully considered but they are not persuasive. Applicant has asserted on page 8 of the remarks that Mikoshiba, Yamaoka and Fujii fail to disclose a second polymer film on the fixed electrode substrate. However, as enumerated above, the combination of the teachings of Mikoshiba, Yamaoka and Fujii produce a transparent conductive laminate comprising a second polymer film exhibiting a λ/4 retardation which provides the beneficial properties of color compensation.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHELE JACOBSON whose telephone number is (571)272-8905. The examiner can normally be reached on Monday-Thursday 8:30 AM-7 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on (571)272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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